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- Ph.D. in Theoretical Physics, Syracuse University
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Additional Information:

- Co-Author of Biomarkers of Immunotoxicology, National Academy of Sciences, Contributor to Multiple Chemical Sensitivities, National Academy of Sciences, Co-Editor of Health and Safety in Agriculture, Forestry, and Fisheries.

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- Dr. Monro is a Fellow of the American Academy of Environmental Medicine, A Diplomate of the International Board of Environmental Medicine, and a member of the American College of Occupational and Environmental Medicine. She is also an Associate of the British Society of Occupational Medicine and a member of the British Society for Allergy and Environmental Medicine.

- Dr. Monro is a Consultant Physician in Environmental Medicine appointed to Fachkrankenhaus Nordfriesland Schleswig-Holstein in a neurotoxische Ambulanz dealing with clinical neurotoxicology. This German hospital is establishing an environmental unit.

- She has a background in hospital geriatric medicine and worked at the National Hospital for Nervous Diseases, Queen Square, London, researching migraine and multiple sclerosis. She entered full time practice in Environmental Medicine in 1982 and in 1988 established the Breakspear Hospital for Allergy and Environmental Medicine.

- She has many publications to her name and is a regular faculty member at AAEM meetings. Her primary areas of interest are functional medicine and detoxifying enzyme pathways.

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General Information:

Study: Dental Technician /Medicine/ Dental Medicine

Work: University of Erlangen: 5 years Maxillo Facial Surgery, 2 years Traumatology

Scholarship: 6 years for Clinical associated basic research in the fields - Carcinoma, Pain, Osteoporosis

Additional Information:

- written several books

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William J. Rea, M.D.  
Environmental Health Center - Dallas  
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Fax: 214/691-8432

General Information:

- Graduated with a M.D. from Ohio State University College of Medicine in 1962
- Board Certified in Environmental Medicine, Thoracic and General Surgery
- Member of the American Academy of Environmental Medicine, Pan American Allergy Society and the American Academy of Environmental Otolaryngic Allergy
- Received the Jonathan Forman Gold Medal award and the Herbert J. Rinkel Award from the American Academy of Environmental Medicine.

Books:

- Author of Chemical Sensitivity; Volumes I, II, III, and IV; Your Home, Your Health, and Your Well Being, and Success in a Clean Bedroom.

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Sherry Rogers, M.D.  
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General Information: (Education, Specialties, etc.,)

- Board certified in Family Practice & Environmental Medicine.
- Latest book "Depression Cured At Last" is a blueprint for the environmental medicine approach to every illness, with over 1,000 references - a landmark.

Additional Information: (Books, etc.,)

9 books, subscription newsletter

Gerald H. Ross, M.D.  
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General Information:

- Dr. Gerald Ross is on the medical staff of the Environmental Health Center - Dallas, and a consultant to the Canadian provinces of Ontario and Nova Scotia. He is currently serving his second term as President of the American Academy of Environmental Medicine. Dr. Ross was instrumental in establishing the Nova Scotia Environmental Health Clinic in Halifax, the first clinic of its kind with direct government involvement in the provision of investigation and treatment services for the chemically-sensitive patient.

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Fuller Royal, M.D.  
The Nevada Clinic  
3720 Howard Hughes Parkway  
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General Information:

- 1956 graduated from Wake Forest University with a B.S. degree
- 1960 received from Bowman Gray School of Medicine his M.D.
- 1960-1961 internship with Wilford Hall Air Force Hospital, in San Antonio, TX
- presently he is the Medical Director for The Nevada Clinic, Las Vegas
- 1992 - Present - President Nevada Board of Homeopathic Medical Examiners
- 1992 - Present - Treasure, California State Homeopathic Medical Society
- Member of American Academy of Environmental Medicine, American College for Advancement in Medicine and many more.

Additional Information:

- Written a number of books and articles

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General Information:

- M.D. from Yale University
- Radiology from University of California at San Francisco
- Nuclear Medicine from Yale University
- Faculty of University of Texas, Southwestern Medical School
- Former deputy director of Nuclear Medicine, National Institutes of Health
- Now practices at the Advanced Metabolic Imaging / North Dallas Laboratory

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General Information: (Education, Specialties, etc.,)

- Background: Physics & Electrical Engineering
- Research: X-Ray TV Systems; Electromagnetic Properties of Biomolecules, and Living Systems, "Memory" of Water Electromagnetic Hypersensitivity.

Additional Information: (Books etc.,)

"Electromagnetic Man" and many chapters in other books.

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B.A.S.c. (Engineering Physics); M.A.S.c, Ph.D. (Physical Metallurgy)  
Thermodynamics, Kinetics, Phase Transformation, Crystallization, Semiconductor Processing,  
Materials Science, Psychoenergetics -

Over 300 Published papers and 3 books

"Science and Human Transformation" (1997)

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# 15TH ANNUAL SYMPOSIUM SCHEDULE

**THURSDAY, FEBRUARY 20, 1997**

7:00a.m.     REGISTRATION

8:15            WELCOME: GARY OBERG, M.D., GERALD H. ROSS, M.D.

                 MODERATOR GERALD H. ROSS, M.D.

8:30            ROY A. FOX, M.D.

                 EMF SENSITIVITY IN WORKERS IN A HOSPITAL WITH IAQ  
                 PROBLEMS

9:00            WILLIAM J. REA, M.D.

                 BASIS FOR EMF SENSITIVITY

9:30            JACQUES BENVENISTE, M.D.

                 MEMORY OF WATER

10:00           BREAK WITH EXHIBITORS

                 MODERATOR: KALPANA PATEL, M.D.

10:30           ROLLIN McCrATY

                 ELECTRICITY OF TOUCH

11:00           JOEL R. BUTLER, PH.D.

                 NEUROCOGNITIVE PATTERNS OF CHEMICAL SENSITIVITY

11:30           PROFESSOR GAVRIL MARKAROV

                 DROP SENSITIVITY, RAISING TOLERANCE TO ELECTRICITY IN  
                 NEURASTHENIA POWER LINES WORKERS (NPWL) BY 50-80 Hz  
                 EMF, HYDROTHERAPY (HT)

12:00n          LUNCH WITH EXHIBITORS

                 MODERATOR: GARY OBERG, M.D.

1:00            WILLIAM MEGGS, M.D., Ph.D.

                 INTRACELLULAR ELECTRIC FIELDS: PRODUCTION AND  
                 FUNCTION

1:30            FULLER ROYAL, M.D.

                 HEART RATE VARIABILITY (HRV) IN A CLINICAL PRACTICE

2:00            CYRIL W. SMITH, Ph.D.

                 BASIC BIOELECTRICITY

2:30            JEAN MONRO, M.D.

                 PATIENTS WITH ELECTROMAGNETIC SENSITIVITIES

3:30            BREAK WITH EXHIBITORS

4:00            CASE STUDIES MODERATORS:

                 WILLIAM J. REA, M.D., GERALD H. ROSS, M.D.

                 CASE PRESENTED BY DEBORAH BANKER, M.D.

5:30            ADJOURN

**FRIDAY, FEBRUARY 21, 1997**

**8:15am**      **ANNOUNCEMENTS/MODERATOR: ROY A. FOX, M.D.**

**8:30**            *JEAN MONRO, M.D.*  
THE ELECTROMAGNETIC BASIS OF NEUTRALIZATION THERAPY

**9:00**            *WAYNE B. JONAS, M.D.*  
INTRODUCING VOLUME AND SCOPE OF OAM

**9:30**            *WILLIAM J. REA, M.D.*  
THERAPEUTIC MODIFIERS DESIGNED TO ORDER ELECTRO-DISTURBANCES: ACUPUNCTURE, INJECTION, NEURAL AND OTHER THEORIES

**10:00**          **BREAK WITH EXHIBITORS**

**MODERATOR: WILLIAM MEGGS, M.D., PH.D.**

**10:30**          *CYRIL W. SMITH, Ph.D.*  
BIOELECTRICITY AND ENVIRONMENTAL MEDICINE

**11:00**          *WILLIAM A. TILLER, Ph.D.*  
BIO-MAGNETO-PHOTO ELECTROCHEMICAL

**11:30**          *ALFRED R. JOHNSON, D.O.*  
OSTEOPATHIC CONCEPTS & THE AUTONOMIC NERVOUS SYSTEM

**12:00n**        **OPEN LUNCH**

**MODERATOR: WAYNE B. JONAS, M.D.**

**1:30**            *DR. MED ULRICH G. RANDOLL*  
CELL-MATRIX AND CELLS - FIELD AND RHYTHM-STRUCTURES OF LIFE

**2:30**            *PROFESSOR THILO KORNER*  
ENVIRONMENTAL, INFECTIONS AND HEAVY METAL ANALYSIS IN OVER 300 PATIENTS

**3:00**            *SHERRY ROGERS, M.D.*  
THE CAUSES AND CURES OF BREAST CANCER

**3:30**            **BREAK WITH EXHIBITORS**

**MODERATOR: ALLAN LIEBERMAN, M.D.**

**4:00**            **PANEL DISCUSSION/CASE STUDIES**  
*THEODORE R. SIMON, M.D.*  
BRAIN SPECT AND NEUROTOXICITY

**5:30 - 7:00**   **RECEPTION**

**SATURDAY, FEBRUARY 22, 1997**

**8:15a.m. ANNOUNCEMENTS/MODERATOR: SHERRY ROGERS, M.D.**

**8:30 JACQUES BENVENISTE, M.D.**

THE EMERGING DIGITAL BIOLOGY

**9:00 WILLIAM MEGGS, M.D., Ph.D.**

CHRONIC DISEASES INDUCED BY TOXINS

**9:30 RUSSELL JAFFE, M.D., Ph.D.**

MITOCHONDRIAL ENERGETICS, THE COUPLING & UNCOUPLING

**10:00 BREAK WITH EXHIBITORS**

**MODERATOR: JEAN MONRO, M.D.**

**10:30 GERALD H. ROSS, M.D.**

LONG-TERM FOLLOW UP ON ELECTROMAGNETICALLY PATIENTS

**11:00 ROY A. FOX, M.D.**

HEIGHTENED SENSITIVITY SYNDROME

**11:30 FULLER ROYAL, M.D.**

HEART RATE VARIABILITY (HRV): THE IDEAL RESEARCH TOOLS  
FOR CLINICIANS

**12:00n OPTIONAL LUNCH**

**MODERATOR: BERTIE GRIFFITHS, Ph.D.**

**1:30p.m. TATSUTO NAMBA, M.D. / MIKIO MIYATA, M.D. / TOSHIYA TOMIOKA, M.D.**

EFFECTS OF ELECTROMAGNETIC WAVES ON MICE LENS

**2:00 PROFESSOR GAVRIL MARKAROV**

APPLICATION OF MAGNETIC FIELD (MF) IN MEDICINE (IN RUSSIA)

**2:30 NANCY A. DIDRIKSEN, Ph.D.**

NEUROCOGNITIVE RELATIONSHIPS BETWEEN A  
COMPREHENSIVE NEUROPSYCHOLOGICAL BATTERY & A  
NEUROPSYCHOLOGICAL SCREENING TEST DEVELOPED ON  
CHEMICALLY SENSITIVE PATIENTS

**3:00 KENNETH J. McCLEOD, Ph.D.**

ELECTROMAGNETIC FIELD INTERACTIONS WITH LIVING TISSUE;  
MECHANISMS AND APPLICATIONS

**3:30 BREAK WITH EXHIBITORS**

**MODERATOR: ALLAN LIBERMAN, M.D.**

**4:00 PANEL DISCUSSION/CASE STUDIES**

SUSAN F. FRANKS, Ph.D.

CHEMICAL SENSITIVITY: ENHANCEMENT OF DIAGNOSTIC  
CRITERIA BY MULTIVARIATE-CLUSTER ANALYSIS

**5:30 - 7:30 COCKTAIL PARTY**



**SUNDAY, FEBRUARY 23, 1997**

**8:15a.m.**     **ANNOUNCEMENTS/MODERATOR: ALFRED R. JOHNSON, D.O.**  
**8:30**         ***WILLIAM A. TILLER, Ph.D.***  
                 **PHYSICAL DOMAIN CORRELATES OF SUBTLE ENERGY ACTIONS**

**9:00**         ***BERTIE GRIFFITHS, Ph.D.***  
                 **THE EFFECT OF VARIED CHEMICALS AND ELECTRO MAGNETIC  
                 FIELDS ON THE CELL CYCLE**

**9:30**         **BREAK WITH EXHIBITORS**

**MODERATOR: ERVIN FENYVES, Ph.D.**

**10:00**         ***ROLLIN McCrATY***  
                 **NEW NONINVASIVE MEASURE OF AUTONOMIC FUNCTION AND  
                 BALANCE: BACKGROUND AND CLINICAL EXAMPLES**

**10:30**         ***PROFESSOR THILO-KORNER***  
                 **THE IMPORTANCE OF THE "INTEGRATIVE MEDICINE" (IM) IN THE  
                 DAILY PATIENT CARE AND IN CHRONIC DISEASE DEVELOPMENT**

**11:00**         ***GERALD H. ROSS, M.D.***  
                 **CLINICAL PRESENTATION OF PATIENTS WITH EMF  
                 HYPERSENSITIVITY**

**11:30p.m.**                 **SUMMARY AND CLOSE: ROY A. FOX, M.D.**

Roy A. Fox MD, FRCPC: Nova Scotia Environmental Health Centre, Dalhousie University

## **ELECTRICAL SENSITIVITY IN WORKERS IN A HOSPITAL WITH INDOOR AIR QUALITY PROBLEMS**

An earlier study of a group of chemically sensitive disabled workers from Camp Hill Hospital revealed that about half were also Electrically Sensitive. For only one worker, Electrical Sensitivity (ES) was one of the major presenting complaints. For most of the other individuals intolerance of electrical appliances or exacerbation of symptoms by exposure to electromagnetic fields was not included in the presenting history. However direct questioning revealed that about half of the patients did have symptoms of ES and that most had made significant lifestyle changes to cope with the problem. Lessening of ES appeared to parallel improvement in health and reduction of chemical sensitivity. More than 5 years after the onset of environmental illness more than 100 workers from this hospital remain disabled and unable to pursue any gainful employment. Chemical sensitivity is the most important aspect of the illness that limits employment potential and ES does not appear to be a major issue affecting life style for any of these patients. However, a significant proportion admit to perturbation of well-being by exposure to various electrical appliances. Some of the recovered workers report the ability to sense coherent electromagnetic radiations and use this to avoid prolonged exposures. In this situation the heightened awareness might be considered an asset as a defense mechanism rather than a trigger for physiological dysfunction.

All patients who are seen in consultation in the NS Environmental Health Centre are asked about ES. At the present time this does not appear to be a significant problem for the majority of patients and does not appear to warrant specific treatment. In the patients where this has been identified as a major factor, addressing total body load or the use of desensitization techniques to lessen chemical sensitivity and allergy has resulted in significant amelioration of ES symptoms.

The patients or hospital workers with or without ES need to be looked at more closely to determine if there are differences in exposures or in biotransformation abilities which might account or the development of ES in some. Within the hospital workers it is known that there were many problems contributing to the IAQ problems. The most significant appears to have been the exposure to mixtures of amines added to the boiler and steam supply for their anticorrosive properties. This mixture contained cyclohexylamine, morpholine and other amines. These substances have profound effects on nervous system function by competitive inhibition of biogenic amine metabolism and interaction with the NMDA receptors. Alteration of biogenic amine synthesis thus changing the ratios of putrescine, spermine and spermidine can have profound effects on the nerve blood barrier and the blood brain barrier. The negatively charged amines have a more profound effect on membrane functions such as permeability. These changes in membrane function which occur as a direct effect of the amines, the alteration in biogenic amines or the increased penetration of other chemicals are likely to result in altered function and altered electromagnetic characteristics.

## Basis for EMF Sensitivity - Clinical Responses

William J. Rea, M.D., F.A.C.S, F.A.A.E.M.

The extracellular matrix and the ground regulation system is the environmental receptor system within the body. It is an open ended dynamic molecular dissipative energy system which is labile because of its molecular oscillation and the fact it is a receptor for all environmental stimuli, including electromagnetic, electric, atmospheric pressure, static electricity, spherics circadian rhythms and cycles, nutrition and total body pollutant or traumatic load, life forces and subtle energy.

The ground regulation system controls homeostasis and is part of every defence and inflammatory reaction. The regulation of this system depends upon the spontaneity of molecular reactions with homeostasis being a dynamic balance between entropy, the random distribution of molecules and enthalpy, the structured organization of molecules. Excess entropy means that there is an excess of exchanges of energy and this structure is lost, therefore, acute inflammation, allergy, rheumatoid disease and tumors occurs. Excess enthalpy means there is too little free exchange of energy, therefore, supermolecular states of order occur with sclerosis, nodules, sarcoma's, aneurysm, dissecting aneurysms and valvular disturbances occurring.

Understanding the ground regulation system results in the idea that energy ( $E=Mc^2$ ) can be changed into mass and that inappropriate input of pollutant, bacteria or viral energy can result in pathologic processes.

Jacques Benveniste Digital Biology Laboratory, 32 rue des Carnets, F-92140 Clamart  
MEMORY OF WATER

Many studies on the biological effects of highly diluted ligands have yielded significant results. Beyond the "memory of water", they could have wide consequences for biology, revealing fundamental aspects of molecular interaction. In 1988 we reported the effect of a highly diluted anti-human IgE antibody on human basophil achromasia, triggering shallow criticisms. In 1990, we performed two series of blind experiments in collaboration with biostatisticians: 1) Activation of human basophils by IgE (but not anti-IgG) antisera diluted to  $-log\ 30$ . 2) Inhibition of basophil activation by highly diluted/agitated *Apis mellifica* but not by placebo. Thus these effects cannot be explained by the agitation, a never validated hypothesis. In three series of experiments, we measured the synthesis by mouse macrophages of the inflammatory mediator paf-acether after oral intake of highly diluted silica. Differences between treated and control mice were highly significant in all experiments ( $p < 0.01$  to  $p < 0.05$ ), demonstrating a cellular *in vivo* effect of high dilutions of silica. Isolated guinea-pig hearts were infused with highly diluted agonists. A significant ( $p < 0.001$ ) time-dependent modification of the coronary flow was induced by histamine dilutions ( $log\ 31-41$ ) but not by diluted/agitated buffer. Heating high dilutions ( $70^{\circ}C$ , 30 min) or exposing to magnetic field (50 Hz, 150 oersteds, 30 min) suppressed their effect but not that of molecules. *In toto*, several hundreds experiments have been performed in blind or open protocols with highly significant results. Thus, a biological activity can be induced by substances so highly dilute that no molecule remains. An artefact has often been suggested but not a single good hypothesis has ever been proposed. To date, twenty-two peer-reviewed publications have reported positive high dilutions experiments in several biological systems, underlining the ubiquitous nature of the phenomenon.

Rollin McCraty, MA and Mike Atkinson

HeartMath Research Center, Institute of HeartMath, 14700 West Park Avenue, Boulder Creek, CA 95006.

## THE ELECTRICITY OF TOUCH

The concept of an energy exchange between individuals is central to many of the healing arts of both Eastern and Western medicine that involve contact or proximity between practitioner and patient. One main block to the acceptance of these therapies by western science has been the lack of a plausible mechanism to explain the nature of this energy or how it is exchanged. The fact that the heart generates the strongest electromagnetic field produced by the body, coupled with the recent discovery that this field becomes more coherent as the individual shifts to a sincerely loving or caring state, prompted us to investigate the possibility that the field generated by the human heart may contribute to this energy exchange.

We present a sampling of results that provide intriguing evidence of the exchange of electromagnetic energy produced by the human heart that occurs when two people touch, as well as an experimental protocol that allows such effects to be measured. Signal averaging techniques are used to show that when two individuals touch or are in proximity, one's electrocardiogram (ECG) signal is registered in the other person's electroencephalogram (EEG) and elsewhere on the person's body. While the transmission of the signal is strongest when people are in contact, the effect is still detectable when subjects are in proximity without contact. Our results suggest that the signal transferred is electromagnetic in origin and that some component of it is radiated.

This study represents one of the first successful attempts to directly measure an energy exchange between people, and provides a solid, testable theory to explain the observed effects of many healing modalities that are based upon the assumption that such an exchange takes place. Nonlinear stochastic resonance is discussed as a mechanism by which weak, coherent electromagnetic fields, such as that generated by the heart of an individual in a caring state, may be amplified by biological tissue and potentially produce measurable effects in living systems. One implication is that the effects of therapeutic techniques involving contact or proximity between practitioner and patient could be amplified by practitioners consciously adopting a sincere caring attitude, and thus introducing increased coherence into their cardiac field.

Joel R. Butler, Ph.D., Environmental Health Psychologists, Dewey, Oklahoma; Nancy A. Didriksen, Ph.D., Health Psychology/Behavioral Medicine Associates, Richardson, Texas; Ernest H. Harrell, Ph.D., University of North Texas, Denton, Texas.

#### NEUROCOGNITIVE PATTERNS OF CHEMICAL SENSITIVITY

The purpose of the present study was to identify the more consistent and pervasive neurocognitive deficits and to determine any patterns of behavior or theoretical brain involvement among chemically sensitive patients. An important objective was to detect those behavioral items which most patients fail, indicating a neurocognitive deficit or problem area.

The subjects were 50 confirmed chemically sensitive patients. There were 26 females and 24 males. All subjects were administered the Harrell-Butler Comprehensive Neuropsychological Screen under standardized conditions. The data were treated statistically.

A brief review of results shows that most chemically sensitive patients reveal some degree of brain-function impairment ranging from mild to severe. Some examples of the most common errors or deficits were visual-motor memory sequence (following a sequence of instructions involving looking, listening, remembering and performing a perceptual-motor task), simple verbal recall (being forgetful of directions, conversations, main points and distracted by intervening input), gross motor movement (unsteady balance and gait), oral apraxia sequencing under time pressure, attention, vigilance and concentration, short attention span, sensory-tactile (peripheral nerve involvement), spatial organization or reorganization with shift in set, visual-motor (remembering what is seen and then reproducing it), receptive speech (comprehension of verbal statement); and perceptual-motor learning (using more than one sense modality).

Theoretical brain involvement tends to be rather diffuse including left and right hemisphere, frontal motor sequencing, cerebellar-vestibular motor system, parietal, and occipital.

G. Markarov

Hospital 83, Moscow, 115598, P.O.Box 53, Russia  
DROP SENSITIVITY, RAISING TOLERANCE TO ELECTRICITY IN POWER  
LINE WORKERS WITH NEURASTHENIA BY 50-80HZ EMF, HYDROTHERAPY/HT/

Introduction: The dependence of neurohaemodynamics, brain activity/ba/ upon selective frequencies of EMF, HT is known /1/.

Objective: To establish the increase tolerance to electricity in neurasthenia power line workers/nplw/ by weak EMF and HT.

Materials, methods: It was examined by double blind control method 93 nplw. The treatment in the Main Group /31nplw/ was represented by HT (250g/l salt hands, legs bath, #10, swimming pool, #10), EMF 50 - 80 hz, 1mv/cm directed to the eyes, head, during 20 sec. - 1 min., 3 times in a day, 10 days. 1 Control Group /31nplw/- EMF/placebo/+ HT. 2nd Control group /31nplw/- HT.

Results, discussion: It was noted the decrease hypersensitivity to EMF in nplw, the reduction fatigue, headache, memory disorders after the treatment in the Main Group. Alfa-waves/EEG data/ became more modulated coherented. It was noted the increase delta-waves, the power in teta-waves got normalised, what good correlated with decrease of the level of glutamat, glycin in blood and it is possible lead to decrease excitotoxicity effect in brain, showed the sedative effect in this group. Cerebral, general haemodynamics improved in groups, more pronounced in the Main. The treatment effectiveness in the Main Group-91%. In 1, 2 Control groups-78%, 76%.

Conclusion: It was stated possibility to enlarge tolerance to electricity, improve intracortex communication, optimise brain tone, neurotransmitter changes in the power line workers with neurasthenia by selective frequencies of EMF, HT.

Reference: 1. G. Markarov "Rehabilitation by sea bath and low frequency pulse electromagnetic field 20-40 hz in drug resistent hypertonic patients". XXth International Congress on Talassotherapy. Abstracts, Germany, Borkum, 1991, p.87

William J. Meggs, M.D., Ph.D., East Carolina University  
**INTRACELLULAR ELECTRIC FIELDS: PRODUCTION AND FUNCTION**

Highly organized structures rapidly form inside cells, carry out a specialized function, and may dissipate rapidly. Examples include the mitotic spindle structure, pseudopods in neutrophils during chemotaxis, and the microtubule network in axons. The objective of this work is to develop an understanding of how electric fields can develop inside cells, and how these fields can cause a polymerization of macromolecules into structures within cells. Sustained electric fields cannot develop from static charges inside of cells because the electrolytes in solution rapidly set up a screening field. Hence, in order to develop internal fields inside cells, currents must flow. Ion pumps are proposed as a mechanism for producing the current flows needed to set up internal electric fields. Once these fields are established, polar macromolecules will rotate into the direction of the fields, enhancing polymerization. Polymers will form parallel to the electric field lines. This theory has been tested with a computer simulation of mitosis, with ion pumps located at the spindle poles. Tubulin polymerizes parallel to the field lines, to form the spindle fibers. Good quantitative results are obtained. Practical applications of this theory are discussed.

Conclusion. Internal electrical fields in cells can be produced by currents from ion pumps that will not be screened by electrolytes. Polar macromolecules will polymerize in the direction of the electric fields, forming structures determined by the electric field lines. This theory provides a mechanism to explain a number of processes in biology, including mitosis.



# CLINICAL APPLICATIONS OF HEART RATE VARIABILITY

## "Significant Changes in Autonomic Nervous System Activity after the Administration of a Single Dose of Homeopathic Medicine"

F. Fuller Royal, M.D.,<sup>a</sup> Saul Kullok,<sup>b</sup> Daniel F. Royal, D.O.,<sup>c</sup>  
J.R. Kullok,<sup>c</sup> Shlomo Amselem,<sup>b</sup> D. Gregory Olson<sup>a</sup>

### ABSTRACT

This study, conducted on two similar sample populations, a total of 193 men and women presenting medical complaints, ages 50 and older, objectively demonstrates for the first time that after a single dose of a homeopathic medicine significant changes in autonomic nervous system (ANS) activity can be measured with special medical equipment. The values of heart rate variability (HRV) variables were computed from data acquired from a one-lead electrocardiogram (ECG) with 23-minute basal and standardized methodology. In the first group, both time and frequency domain analysis of the RR intervals were obtained for 131 subjects before and after the oral administration of a homeopathic medicine. The results, or statistical changes, were either significant or very significant in 9 of the 10 variables of HRV investigated ( $0.04 > p > 0.0002$ ). Pearson correlation coefficient for paired measurements ranged from 0.8439 to 0.5173.

In a second or "control" group of 62 subjects, time and frequency domain analysis were again obtained but, in this case, before and after a double blind oral administration of a placebo of distilled water. For the control group, no significant statistical change was obtained in any of the 10 variables investigated in this study ( $0.064 > p > 0.825$ ). Pearson correlation coefficient for paired measurements was high in 9 of the 10 variables, ranging from 0.808 to 0.926. These results demonstrate the stability of the HRV baseline measurement, as well as the total lack of sensitivity of HRV variables to the effects of placebo medication in a patient population. Indeed, the values of all HRV variables obtained with the standardized 23-minute basal method for ECG data collection used in this study proved to be unusually stable.

As a result, we submit that patient response to appropriately selected homeopathic medicines can now be accurately monitored through the assessment of changes in HRV variables with a non-invasive method carried out in a clinical environment. Implications of these findings for present and future homeopathic, alternative, and orthodox medicine is discussed.

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## **BASIC BIOELECTRICITY**

Electricity is as fundamental to biological systems as is the chemical bond from which it derives. There must also be a duality between chemical structure and frequency otherwise, spectroscopic analysis would be impossible. Electric charge in motion generates a magnetic field in the surrounding space; the acceleration or deceleration of electric charge generates frequencies of electric and magnetic field which radiate away at the velocity of light. The precision or ordering of the fields and frequencies is called their '*coherence*'. In water and living systems, this can be very high and gives rise to a long range order. The fundamental question to be answered is whether a living system can behave as a macroscopic quantum system in its internal interactions and in those with its external environment. Possible examples of such interactions in water and living systems will be presented.

**Dr Jean Monro**

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## **PATIENTS WITH ELECTROMAGNETIC SENSITIVITIES**

Serendipity has been responsible for many advances in science and medicine. The observations made concerning patients with electrical sensitivities began in 1980 when patients exposed to neutralizing vaccines, who were thawing their vaccines in field vials, reacted symptomatically to the closed containers. Containers were sent to the National Physical Laboratories to ascertain the frequencies which could be transmitted through the vials, and it was discerned that these frequencies were in the region of radio-wave transmissions. It was clear, therefore, that the antigen within the vials was having an interactive effect with the patient through a frequency effect. Patients were exposed to vials which were screened from them by either solid plates or by meshes, and it is clear that where the mesh pore size was large enough, the vaccine could have an effect even though separated from the patient by a small amount of air as well as the vial itself. Hence, it is clear that the interactive effect is an electromagnetic one.

This effect was demonstrated by cutaneous application of vaccines to the skin of patients, and a video illustrating this was shown at the Dallas conference in 1982. It became apparent, therefore, that patients could react to electromagnetic frequencies. The more acutely sensitive the patients, often the more reactive they were. It also became apparent that other physical phenomena could affect patients, and that they could discern reactivity from other living creatures. This was discerned by patients reacting to another patient being tested in the same room or even in the same building. Observations which are known to man were then observed in these patients in that they were able to discern other phenomena which we would regard as homoeopathic responses, healing responses, kinesiology and placebo responses to individuals involved in treatment. We have been able to ascertain the very basic responses of man's awareness of physical phenomena through these observations, and can claim that these techniques have allowed us to have a window into the very essence of man's nature and appreciation of his surroundings.

We have had amongst our patients managed over the last 15 years, the first person regarded as having a severe disability and being paid a pension by the Norwegian government, individuals who have had electrical sensitivity and food and chemical sensitivities who have now been treated and restored to a complete and normal health., patients with extreme perspicacity whose talents will be described, and a range of measures taken by patients who have had to special precautions because of their electrical sensitivity. Extreme sensitivity can be related to very weak dilutions of substances and this has been noted in the function of the human vermero-nasal organ which was effects on steroid receptors and hypothalamic function.

## **THE ELECTROMAGNETIC BASIS OF NEUTRALISATION THERAPY**

**DR JEAN MONRO**

There are five methods available for suppression of allergic disease by immunological means :-

1. Graded normal exposure
2. Incremental injections
3. Neutralising therapy
4. Pulse steroid therapy
5. Enzyme-potentiated desensitisation

Noon in 1911(1) described a "low dose desensitisation".

### **NEUTRALISING THERAPY**

When a series of dilutions is injected into patients, a bell-shaped dose response curve results, indicating histamine release in response to allergens, histamine is released at the same site, and higher doses of allergens produce less response but a still higher doses provoke further histamine release.

Both provocation and neutralisation of symptoms have been shown to occur sequentially. Rinkell reported that symptoms can be induced and stopped by a higher dose of allergen and Lee suggested that a high dose of pollen can sometimes be used prophylactically to protect patients against normal exposure to allergens. A period of treatment with neutralising injections has been shown to result in desensitisation; if the vaccine titrated is used regularly, patients do not develop the same response to antigen provocation.

The mechanism in the allergic response is the reaction of the body to electromagnetic stimuli.

ABSTRACT FOR DR. JONAS NOT AVAILABLE

## Therapeutic Modalities Designed to Order Electro Disturbances

William J. Rea, M.D., F.A.C.S., F.A.A.E.M.

Once one understands that the extracellular matrix and the rest of the ground regulation system is an open ended dynamic dissipative energy system that controls homeostasis and is part of every defense and inflammatory reaction one can then devise numerous therapies to influence this environmental receptor system. The therapies fall in general categories to correct acidity, oxygen lack, nutritional deficits or excesses, decrease or eliminate non enzymatic glycolysation, by fasting or avoidance of pollutants, bacteria, viral, fungal, or parasitic load and to reorder the electrical aspects of the system directly.

These therapeutic modalities include therapies such as alkalization, electrolyte replacement, oxygen administration, nutritional supplementation (including herbs), fasting, pollutant avoidance, heat depuration and physical therapy, osteopathic manipulation (including cranial manipulation), acupuncture, homeopathic (injection therapy, foods, biological inhalants, chemicals and scars), energy equalization.

It is clear from the therapeutic stand point that in the very mild patient one of those modalities may work but in the more severe patient many of these modalities may have to be used simultaneously or sequentially. It is clear that in order to obtain and maintain a healthy, lasting, energetic lifestyle, the general principles of environmental medicine must be constantly used and practiced.

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## **BIOELECTRICITY AND ENVIRONMENTAL MEDICINE**

Patients with existing chemical sensitivities may in addition acquire sensitivities (inappropriate responses) to their electromagnetic environment. In general, the same symptoms are triggered by either stimulus. The effects first appear as a malfunction of some part of the autonomic nervous system hence, the widely ranging symptoms encountered. Frequency is the prime factor, the intensity is of less importance once some patient specific threshold is exceeded. Diagnosis may be carried out by challenging the patient with frequencies in a controlled electromagnetic environment which is chemical and particle "clean". Alternatively for patients who are too sensitive to tolerate this, the patient can imprint the body field into water by succussing a glass tube of water against a wooden surface. The frequencies can subsequently be measured in the absence of the patient. The method of treating chemical sensitivity by *neutralisation* with an appropriate serial dilution of allergen has been adapted to electromagnetic sensitivity treatment with the appropriate frequency being imprinted into water by the process of succussion in a magnetic field oscillating at that frequency. The process of adaptation determines when an *effect* may become a *hazard*. This work, ongoing since 1982, points to factors and synergistics necessary for a healthy chemical and electrical environment.

William A. Tiller, Stanford University

TOWARDS UNDERSTANDING LIVING BIO-MAGNETOPHOTOELECTROCHEMICAL  
SYSTEMS

We all know what constitutes a chemical system and perhaps how thermodynamics and reaction kinetics govern both the types of changes that can take place and how rapidly they will occur. Some of us even know how to incorporate electric field effects in order to convert a chemical potential into an electrochemical potential but then things start to get fuzzy for us and it is difficult to grasp the "larger" picture; to see how to incorporate photonic and magnetic effects into a purely physical picture; to see how to expand the purely physical description in order to include the effects of emotion, mind and spirit and to see what differentiates a dead bio-system from a live bio-system. Since this larger perspective is important for us to appreciate, even though our cognitive systems presently limit most of us to an awareness of only the physical band of reality, in this lecture I will sketch how these higher bands of reality can produce forces that drive the physical processes in our bodies. I will show how the subtle energies of these higher dimensional domains produce correlates that can be measured in the physical domain and thus try to move us beyond today's purely physical medical model to one more appropriate for future medical therapeutics.



ABSTRACT FOR DR. JOHNSON NOT AVAILABLE